

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

REC'D 30 MAY 2006
PCT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/GB2005/000977	International filing date (day/month/year) 15.03.2005	Priority date (day/month/year) 15.03.2004
International Patent Classification (IPC) or national classification and IPC INV. G01C21/36 G08G1/0969		
Applicant TOMTOM B.V. et al.		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> <i>(sent to the applicant and to the International Bureau) a total of 6 sheets, as follows:</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. <p>b. <input type="checkbox"/> <i>(sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</i></p>
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2005/000977

Box No. I Basis of the report

1. With regard to the **language**, this report is based on

- the international application in the language in which it was filed
- a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3(a) and 23.1(b))
 - publication of the international application (under Rule 12.4(a))
 - international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1, 2, 5-26	as originally filed
3, 4	filed with telefax on 13.01.2006

Claims, Numbers

1-26	filed with telefax on 13.01.2006
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Drawings, Sheets

1/11-11/11	as originally filed
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- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N) Yes: Claims 1-26
No: Claims

Inventive step (IS) Yes: Claims
No: Claims 1-26

Industrial applicability (IA) Yes: Claims 1-26
No: Claims

2. Citations and explanations (Rule 70.7):

see separate sheet

Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement.

1 The following document is referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1 = US 2004/0027 258
D2 = US-A-5 612 881

2 Novelty

2.1 According to the applicants the difference between D1 which is adapted to calculate and to display a schematic view of the next section is that in claim 1 as received on 13.01.06 the device shows, at one time, at least the remainder of the entire route from the current location of the device, for any location of the device on the route and that the schematic view includes graphical depiction of dynamic travel information relating to the route.

2.2 The opinion of the primary examiner is that the schematic view including graphical depiction of dynamic travel information relating to the route is known from D1, see figures 4, 7 and 8b as well as the corresponding portion of the description. Whereas Claim 1 as received on 13.01.06 only differs from D1 in that it shows, at one time, at least the remainder of the entire route from the current location of the device, for any location of the device on the route. For this ground claim 1 is new.

3 Inventive step

3.1 According to the above-mentioned demonstration, claim 1 as received on 13.01.06 differs from D1 in that it shows, at one time, at least the remainder of the entire route from the current location of the device, for any location of the device on the route.

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(SEPARATE SHEET)**

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However, such a feature is known from document D2 = US-A- 5 612 881 cited by the applicants in the description page 2, lines 1-3.

- 3.2 The subject-matter of independent claim 1 as received on 13.01.06 is disclosed in combination by documents D1 and D2. therefore this claim 1 does not appear to involve an inventive step, (Article 33 (3) PCT).
- 3.3 The objection as to lack of inventive step raised against independent claim 1 applied mutatis mutandis to claims 25 and 26.
- 3.4 The objection as to lack of lack of inventive step is raised as well agsinst dependent claims 2-24.

CLAIMS

1. A navigation device programmed with a map database and software that enables a route to be plotted between two user-defined places, in which the device is further programmed (i) to be able to calculate and to display a 2-D or 3-D representation of the actual road being travelled along and the current location of the device on that road and (ii) to receive and process dynamic travel information relating to the route;

5 wherein the device is adapted to calculate and to display a schematic view showing, at one time, at least the remainder of the entire route from the current location of the device, for any location of the device on the route, the schematic view including 10 graphical depictions of dynamic travel information relating to the route.

2. The device of any preceding Claim in which the schematic view is a linear representation showing the entire route or the remainder of the route.

15 3. The device of Claim 1 or 2 in which an icon is displayed that represents how recently the dynamic travel information was received by the device.

4. The device of Claim 1 in which the dynamic travel information is displayed at the 20 same time as the 2-D or 3-D representation.

5. The device of Claim 1 in which the dynamic travel information is only displayed at a different time from the 2-D or 3-D representation.

25 6. The device of any preceding Claim in which the dynamic travel information is a dynamic representation of traffic conditions.

7. The device of Claims 6 in which the dynamic representation of traffic conditions graphically represents the traffic flow direction.

30 8. The device of Claim 7 in which the dynamic representation of traffic conditions also graphically represents one or more of the following traffic conditions:

- (i) stationary traffic;
- (ii) queuing traffic;

- (iii) slow traffic;
- (iv) road closure or lane closure or road works.

9. The device of any preceding Claim in which the dynamic travel information is

5 represented by a graphical icon or other kind of selectable option that represents one or more of the following:

- (i) accident;
- (ii) traffic jam;
- (iii) road works;
- 10 (iv) road closure;
- (v) general incident;
- (vi) lane closed;
- (vii) heavy rain;
- (viii) strong winds;
- 15 (ix) ice;
- (x) fog.

10. The device of Claim 9 in which the option can be selected by touching the

option, causing the device to display more details of the dynamic travel information

20 associated with that option.

11. The device of any preceding Claim, wherein the user can, by touching a screen on

the device, task away from the 2-D or 3-D representation of the actual road being

25 travelled along to a menu screen which displays one or more options that, if selected

through a further touch action, initiate a re-calculation of the route.

12. The device of Claim 10 or 11 in which the touch to the screen is a single or a

double touch.

30 13. The device of Claim 12 in which the touch has to be at a region of the touch screen sized to be sufficiently large to allow it to be reliably selected with a fingertip.

14. The device of Claim 13 in which the region is at least 0.7cm² in area.

15. The device of Claim 11 in which the menu screen displays selectable options relating to one or more of the following functions:

- (a) calculate alternative route;
- (b) calculate alternative route without including a predefined extent of the road ahead;
- (c) calculate alternative route without including a predefined road;
- (d) revert to original route.

16. The device of Claim 9 in which each selectable option is one of the following:

- (a) a graphical icon;
- (b) a control or check box; or
- (c) a name.

17. The device of any preceding Claim that receives dynamic travel information using a receiver for a wireless network.

18. The device of Claim 17 in which the wireless network is a short range network established between the device and a mobile telephone, the mobile telephone obtaining the dynamic travel information over a cellular wide area network.

19. The device of Claim 17 or 18 in which the dynamic travel information sent to the device comprises geocoded data that defines the location to which the dynamic travel information relates.

20. The device of Claim 17 or 18 in which the dynamic travel information sent to the device comprises non-geocoded location data that defines the location to which the dynamic travel information relates and the software on the device geocodes that data.

21. The device of Claim 20 in which the non-geocoded data is in TMC format and the device includes in memory TMC tables that it can look up in order to relate the TMC format data to a location in the geocoded co-ordinate system that the device uses so that it can display the travel information at the applicable position.

22. The device of any preceding claim that can send a request to a remote server over a wireless communications network for dynamic travel information relevant to a defined route, the remote server (i) receiving dynamic travel information from one or more data feeds in relation to numerous roads and (ii) sending the dynamic travel information that is relevant to the defined route to the device in response to the request.

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23. The device of Claim 22 that regularly or at pre-defined times or intervals polls the server for updated dynamic travel information.

10 24. The device of Claim 22 in which the request is an initial request for dynamic travel information and subsequently the server automatically pushes updated dynamic travel information to the device.

15 25. A method of displaying navigation information, the method being deployed in a navigation device programmed with a map database and software that enables a route to be planned between two user-defined places, in which the device is further programmed (i) to be able to calculate and to display a 2-D or 3-D representation of the actual road being travelled along and the current location of the device on that road and (ii) to receive and process dynamic travel information relating to the route;

20 comprising the step of the device calculating and displaying a schematic view showing, at one time, at least the remainder of the entire route, from the current location of the device, for any location of the device on the route, the schematic view including dynamic travel information relating to the route.

25 26. Computer software adapted to enable a navigation device, programmed with a map database and software that enables a route to be planned between two user-defined places, to:

30 (i) be able to calculate and to display a 2-D or 3-D representation of the actual road being travelled along and the current location of the device on that road and (ii) receive and process dynamic travel information relating to the route;

wherein the software calculates, and causes the display of, a schematic view showing, at one time, at least the remainder of the entire route, from the current location of the device, for any location of the device on the route, the schematic view including graphical depictions of dynamic travel information relating to the route.

SUMMARY OF THE INVENTION

In a first aspect, there is a navigation device programmed with a map database and software that enables a route to be planned between two user-defined places, in which
5 the device is further programmed (i) to be able to calculate and to display a 2-D or 3-D representation of the actual road being travelled along and the current location of the device on that road and (ii) to receive and process dynamic travel information relating to the route;

10 wherein the device is adapted to calculate and to display a schematic view showing, at one time, at least the remainder of the entire route from the current location of the device, for any location of the device on the route, the schematic view including graphical depictions of dynamic travel information relating to the route.

15 The present invention hence moves away from the established approach of integrating dynamic (e.g. changing or updated) travel information directly onto the 2-D or 3D navigation map representation. By calculating an entirely separate schematic view of at least the remainder of the route and displaying that view on a single screen, it enables the user to immediately see at a glance if there are major delays etc. anywhere on the proposed route. Previously, it was very difficult for the user to see at a glance whether
20 any major traffic incidents affected the route; he would have for example to scroll through a list or 2D display of the entire route, perhaps involving many separate interactions with the device.

25 In one implementation, the schematic view is a linear representation of the route or the remainder of the route not yet travelled along. Icons representing different travel disturbances (e.g. traffic jams, ice etc.) can be placed on this linear representation; the device uses the approximate distance to the disturbance to place it at the correct position on the linear representation.

30 An icon may be displayed that represents how recently the dynamic travel information was received by the device; this is especially useful for traffic information since the user will often wish to know how up to date the information is. Also, the user can request updated dynamic travel information by selecting an appropriate function displayed on the

device; the 'data freshness' icon, serves as a useful indication as to when that may be useful.

The dynamic travel information may be displayed at the same time as the 2-D or 3-D representation of the actual road being travelled along; for example, in a separate window to one side of the main navigation map. This separate section could be always shown when the navigation map is shown, or it could be shown only when an option to display dynamic travel information has been selected by the user. Alternatively, it may be displayed only on a different screen from the main navigation map; for example, the user tasks away from the screen showing the navigation map to a screen showing the schematic display.

The device can (directly itself or using another device with communications capabilities) send a request to a remote server over a wireless communications network for dynamic travel information relevant to a defined route, the remote server (i) receiving dynamic travel information from one or more data feeds in relation to numerous roads and (ii) sending the dynamic travel information that is relevant to the defined route to the device in response to the request. Using a server to collect and analyse dynamic travel information is a very efficient and extensible approach, readily enabling new kinds of travel information to be handled and wirelessly distributed to navigation devices. The device may include an integral radio receiver that can receive the dynamic travel information or may set up a short range link with a mobile telephone, the mobile telephone then receiving the dynamic travel information over the cellular network and passing it along to the adjacent navigation device.

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